

DESCRIPTION OF THE FOURTH INSTAR LARVA AND PUPA OF *DASYOMMA TONNOIRI* PARAMONOV (DIPTERA: ATHERICIDAE)

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Abstract

The fourth instar larva and the pupa of *Dasyomma tonnoiri* Paramonov are described from two reared specimens. This is the first description of the immature stages of this family in Australia.

Introduction

The Athericidae (Stuckenberg 1973) is represented in Australia by two genera—*Suragina* Walker and *Dasyomma* Macquart. The cosmopolitan *Suragina* has been recorded in northern Queensland (Colless and McAlpine 1974), while *Dasyomma* is widespread in the south of the continent where 11 species occur (Paramonov 1962). However, only *D. tonnoiri* Paramonov has been recorded in Victoria, probably due to limited collecting and the short season of adult activity (D. McAlpine pers. comm.).

The known larvae of athericids are aquatic (Stuckenberg 1973), those of the type genus *Atherix* Meigen in particular being well known overseas and often illustrated (Usinger 1956, Merritt and Cummins 1978, Webb 1981). This may have led to some larval Australian Athericidae being mistakenly identified as *Atherix* spp. The immature stages of *Dasyomma* are undescribed although Stuckenberg (1973) stated that he had circumstantial evidence that larvae of this genus were of the *Atherix* type. This paper confirms this and describes the fourth instar larva and pupa of *D. tonnoiri* based on two specimens (one male and one female) reared to maturity in the laboratory.

Methods

Larvae were reared using the agar-nematode method of Kettle *et al.* (1975). About 0.05 g (a pinch) of "Farex" was added to the agar to provide an alternative food source. Terminology principally follows that of Webb (1981) and Nagatomi (1961a, b). Descriptions are based on the male specimen, but differences between the male and female are noted.

Results

Material examined—VICTORIA: 2 specimens, reared from larvae, both from the Delatite River, near Merrijig; 1 male coll. 27.xi.1986, pupated 15.xii.1986, emerged 25-29.xii.1986; 1 female coll. 14.ix.1987, pupated 10-12.xi.1987, emerged 23.xi.1987. The adults have been lodged in the Museum of Victoria.

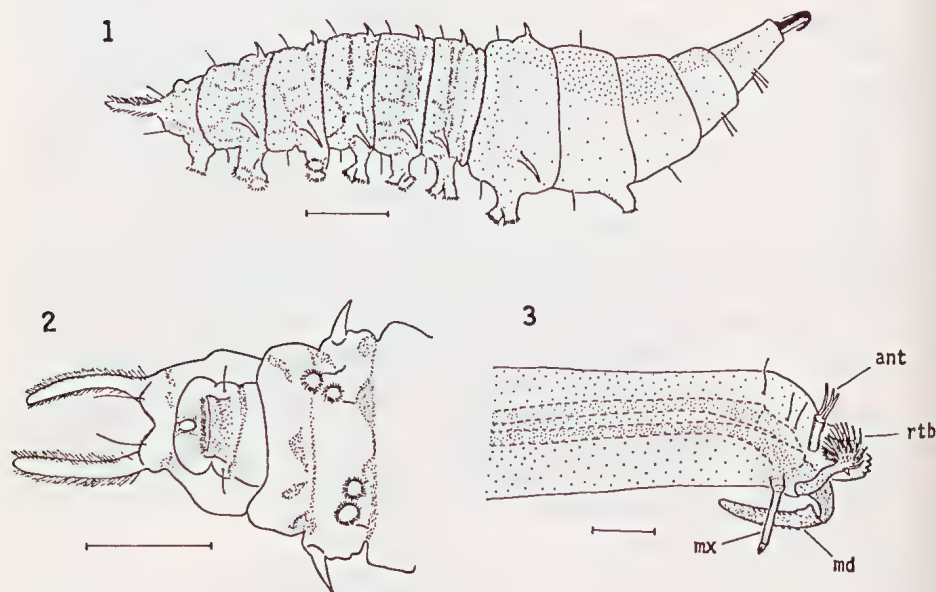
Additional larval material was examined from the Yarra, Tanjil, Thomson and La Trobe Rivers. This material is held in the Museum of Victoria and the State Water Laboratory of Victoria.

Description

Fourth instar larva (Figs 1-3)

Body: Elongate and tapered anteriorly when fully extended.

Head: Small, with prominent "toothed prow", retractable into thorax; head capsule reduced to a pair of metacephalic and tentorial rods. Mandibles with 2 rows of small teeth; maxillae tipped with 3 short filaments; appendage arising from base of each mandible tipped with a thick brush of retrorse bristles. Antenna with a simple basal segment and 3 terminal filaments; longest of these appearing banded; longest antennal filament and basal segment subequal; 3 setae in a row above each antenna.



Figs. 1-3 *Dasyomma tonnoiri*, fourth instar larva: 1. lateral view; 2. caudal segments of abdomen, ventral; 3. head capsule and mouthparts, lateral; ant-antenna, rtb-retrorse bristles on appendage; md-mandible, mx-maxilla. Scale bars: 1 and 2-1 mm; 3-100 μ m.

Thorax: Segments progressively increasing in length and width, without tubercles or spiracles but with ventrolateral bundles of setae on each segment.

Abdomen: Eight distinct segments; each segment distinctly or indistinctly divided by sutures or folds (becoming less distinct when larva is fully extended). Segments 2-7 with paired, pointed, fleshy tubercles subdorsally and laterally; lateral tubercles longer than subdorsal tubercles. Paired bifurcate prolegs ventrally on segments 1-7; each proleg with 3 rings of crochets (curved simple claws); apical and subapical rings of crochets are situated closely together and prominent, but those of lowest ring are minute. Segment 8 with a single proleg ventrally with rings of apical and subapical crochets; a single spiracle situated dorsally on a raised, rounded protruberance; 2 large elongate projections directed posteriorly, bearing fine setae; two long stout setae situated ventrally near base of posterior projections.

Pupa (Figs 4-7)

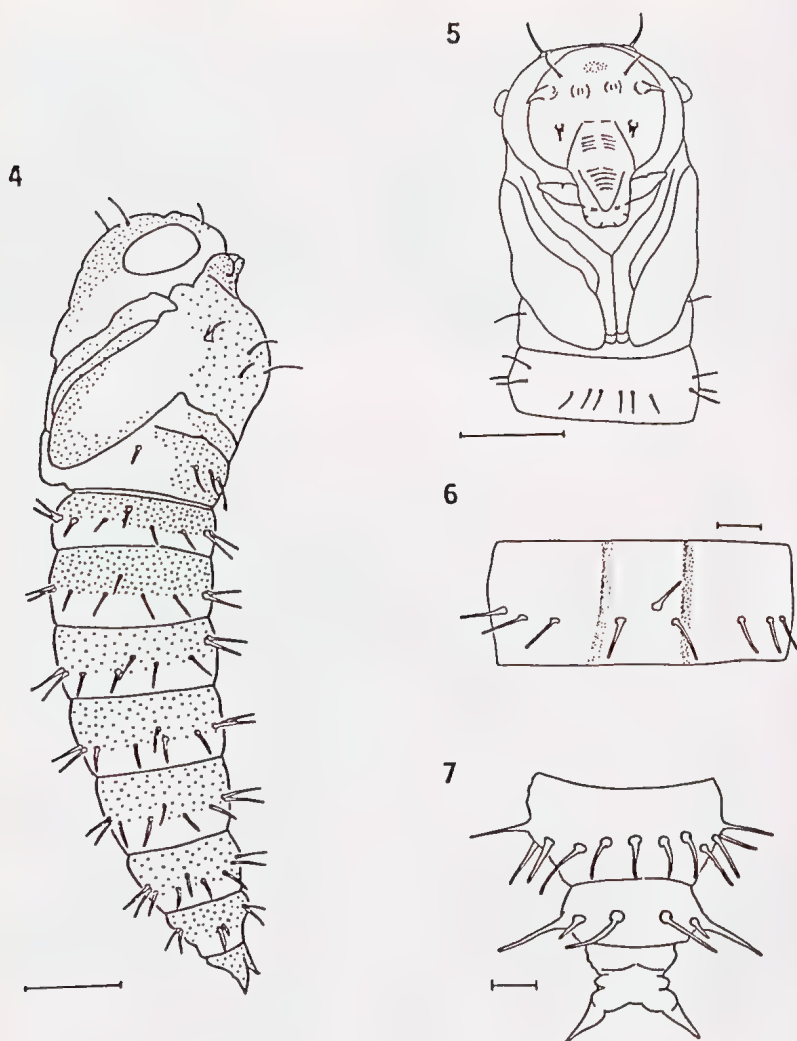
Length 9.4 mm (male), 7.5 mm (female); dark brown with posterior half of abdominal segments pale; abdomen cylindrical and tapering posteriorly.

Cephalothorax: Eye spot pale, prominent. Antennal sheath on frontal plate posterolaterally divergent and longer than basal width; callus tubercles small, each with a long seta; posterior orbital setae paired (one short, one longer) arising from a small tubercle (absent in female); antennal ridges prominent between antennal sheaths; oval-shaped dark mark anteromedially on frontal plate. Vertical setae long, each arising from a small tubercle. Anterior spiracle a raised blunt horn-like structure on anterior mesothorax; opening to spiracle convoluted. Three dorsolateral mesonotal setae, each on a small tubercle; basal alar setae paired (one short, one longer) arising from a tubercle. Wing and leg sheaths extend posteriorly over anterior half of abdominal sternite 1. Metanotum without setae.

Abdomen: Eight distinct segments. Tergites 1-7 each bearing 6 barbed spines. Pleurites 1-7 each bearing a single spiracle on each side; pleurite 1 with a single, small barbed spine on each side; pleurites 2-7 each with 3 barbed spines on each side. Sternite 1 spineless; sternites 2-7 each bearing 6 barbed spines. Abdominal segment 8 with 2 large barbed spines dorsally; 2 spines on each side of the pleura (1 large, 1 small); 4 spines ventrally (2 large, 2 small); posterior spiracle between anteromedial projections.

Discussion

Adults of *D. tonnoiri* have been collected in Victoria from areas in the eastern highlands and the Grampians, indicating that this species is



Figs. 4-7 *Dasyomma tonnoiri* pupa (male): 4. lateral view; 5. head, thorax and first two abdominal segments, ventral; 6. fourth abdominal segment, lateral; 7. caudal segments of abdomen, and antero-medial projections, dorsal. Scale bars: 4 and 5-1 mm; 6 and 7-300 μ m.

widespread, if not common. Athericid larvae have been recorded in several rivers in the eastern part of Victoria, e.g. Thomson River (Malipatil and Blyth 1982), La Trobe River (Metzeling *et al.* 1984), Yarra River (Pettigrove 1988) and Mt. Stirling streams, including the Delatite River (Morley *et al.* 1987). Larval specimens have been examined from these rivers and all appear to be *D. tonnoiri*. Five species of *Dasyomma* were reported from New South Wales and four from Tasmania by Paramonov (1962), and it is highly likely that further collecting and rearing will reveal several more species from Victoria.

The absence of sub-dorsal and lateral tubercles on abdominal segment I of the larva of *D. tonnoiri* distinguishes it from *Atherix* spp. where these tubercles are present (Webb 1981). Features which can be used to distinguish between *D. tonnoiri* and *Suragina* spp. larvae are unknown (Nagatomi 1961a).

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